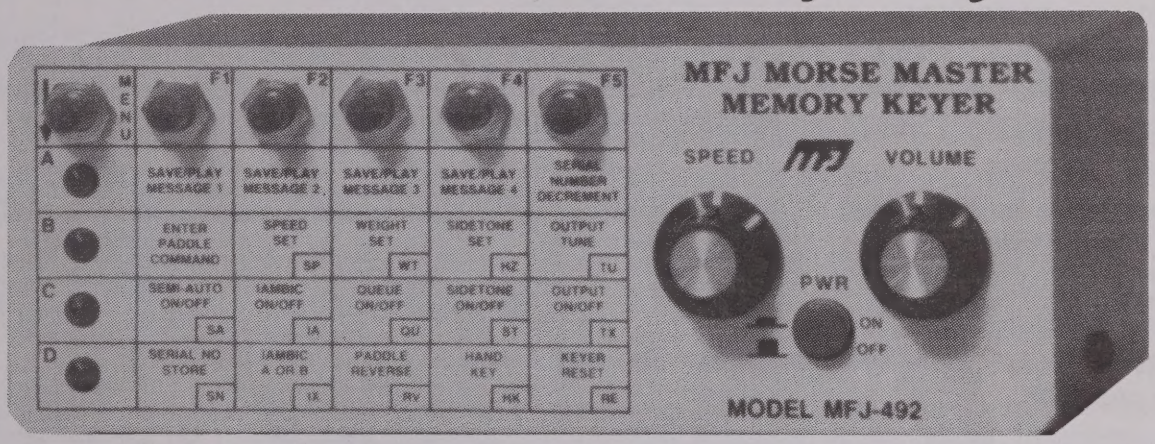
MFJ-492/492X

Menu Driven Memory Keyer™



The MFJ-492 *Menu Driven Memory Keyer*™ is a full featured keyer with an easy to use menu driven interface. This unit has four soft sectored message memories for a total of 192 characters. The MFJ-492X *Menu Driven Memory Keyer*™ is the same keyer but has message memory expanded to 8 separate 1000 character message memories, giving the unit the "X" designation. The keyer can repeat messages continuously, insert timed pauses within messages, insert an auto-incrementing serial number, and have messages call other messages.

The MFJ-492 has adjustable controls for speed and volume on the front of the unit. Also, the speed, weight, and sidetone frequency are adjustable through menu selection or paddle command. Other modes such as Hand Key, Semi-auto, Reverse Paddle, Iambic On/Off, Iambic A/B, Queue, are accessed through menu selection or paddle command. The MFJ-492 has both Direct and Grid-Block outputs and a port for an optional remote control.

INSTRUCTION MANUAL

CAUTION: Read All Instructions Before Operating Equipment

MFJ ENTERPRISES, INC.

P.O. BOX 494, MISSISSIPPI STATE, MS 39762, USA

REVISION 1.0

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MFJ-492 *Menu Driven Memory Keyer*™

FEATURES

Memories:
Four soft sectored message memories for a total of 192 characters (MFJ-492) or eight memories of 1000 characters each (MFJ-492X).

Morse Code Trainer:
Random code generator with 5 character or random 1-8 character length words. Random characters are selectable from alphabetic, numeric, or punctuation sets or specific 6 character sets.

Embedded Commands:
Auto-incrementing serial numbers, Timed pauses up to 99 minutes 99 seconds, Message loop, Linked messages, Message insertion.

Adjustable Parameters:
Code speed is variable from 5 to 100 WPM, weight varies from 5 to 95 %.

Parameter Save:
Message memory and keyer parameters saved in nonvolatile memory.

Sidetone Speaker:
Internal sidetone speaker with adjustable volume and frequency.

Output Tune Mode:
Constant key to tune tuners or antennas

Key Output Disable:
Enable and disable key output to practice operation.

Keying Modes
Iambic On/Off, Iambic A or Iambic B, Hand Key (straight key), Semi Auto (bug), and Reverse Paddle modes are user selectable.

Positive or Negative Key Output:
Supports both positive and negative keyed radios.

Transmitter Compensation:
Adjustable key down delays to compensate for transmitter rise-time delays.

CONNECTIONS

The MFJ-492 *Menu Driven Memory Keyer*™ requires a 12 VDC 250 milliamp power supply. The power jack accepts a 2.1mm coaxial plug with the center conductor positive. An optional DC supply, the MFJ-1312B, is available from MFJ. Connect your MFJ-1312B Power Adapter or compatible DC supply (coaxial line with shield ground) into the power jack on the MFJ-492.

This unit supports both positive and negative keyed radios. Connect a standard shielded RCA cable between your radio key input and to the MFJ-492's **Direct** output for positive keyed radios (most solid state radios) or to the **Grid-Block** output for negative keyed radios (most radios with tube finals.)

A paddle connects to the stereo phone jack with a shielded cable through the back of the unit. Connect the dot wire of the paddle to the ring on the plug and the dash wire to the center conductor. The shield on the plug should be attached to the paddle ground.

☑ **MFJ Enterprises, Inc.** (662) 323-5869
☐ **Mirage** (662) 323-8287
☐ **Vectronics** (662) 323-5800

300 Industrial Park Road
Starkville, MS 39759

PRODUCT SERVICE FORM

Reference No. 36254

Date Received: _____
Ship Date: _____
UPS: ____ Parcel Post: ✓ Other: ____
Customer Ref. No.: 36254
Phone: _____

CUSTOMER
Ron Patterson
17355 Walnut Ave,
Atascadero, CA.
93422

SHIP TO
_____

Model No. 497 **Other:** _____

○ **Refund** ○ **Replace** ○ **Repair**
○ **Exchange for Model No.** _____
○ **Part Request**

Credit Card AP: 023919
○ VISA ○ MasterCard ○ AMEX ○ Discover
Card No.: 4046441409 7 2020
Exp.: 09/04

Method of Payment:
☐ Dealer / RLN
☐ In Warranty (☐ No Charge ☑ Charge Shipping)
Purchased from: _____ Date: _____
☑ Out of Warranty
☐ COD
☐ Advance Payment: $ _____ Date: _____
○ Personal Check ○ Money Order ○ Certified Check
☐ Net 30 P.O.# _____

Quantity	Part Description	Unit Cost	Amount
1	327-8032	3.90	3.90

Technician Comments: _____

Labor	
S&H 6-	6.00
COD	
____ **Charge** / ____ **Quote**	9.90

Repair Time
Minutes: _____ **By:** J.B **Date:** 6-23-03

○ **Refund** Date of Purchase: _____ Date Shipped: _____ Date Charged: _____
Invoice / R# Reference: _____
How Paid: Amount Paid: _____ Amount Refunded: _____
☐ COD ☐ Received ( )
☐ Check / Money Order
☐ Net 30 days
☐ Credit Card
○ VISA ○ MasterCard ○ American Express ○ Discover
Card No.: _____ Exp.: _____
☐ **APPROVAL** By: _____
☐ **DISAPPROVAL** Date: _____

DEAR VALUED CUSTOMER:
☐ Please keep this copy for your records. We have received your request. Please allow 4 weeks for processing.
☐ Your repair is out of warranty, we will ship COD if you do not contact us for payment.
☐ Please return old eprom with this form.
☐ If this product is within warranty, please provide proof of purchase immediately. Refer to Reference No. at top of page.

The last port in the back of the unit is for the optional remote control. The remote control gives you remote access to the keyer menu if the main unit is out of reach. It is simply plugged into the connector through the back plate.

BASIC OPERATION

The *Menu Driven Memory Keyer*™ is simple to operate. The push-button marked **PWR** controls power to the unit. After turning the unit on, the keyer will light the four LEDs sequentially and send the characters "O" and "N" in Morse Code using the sidetone speaker. This tells you the MFJ-492 is ready for operation.

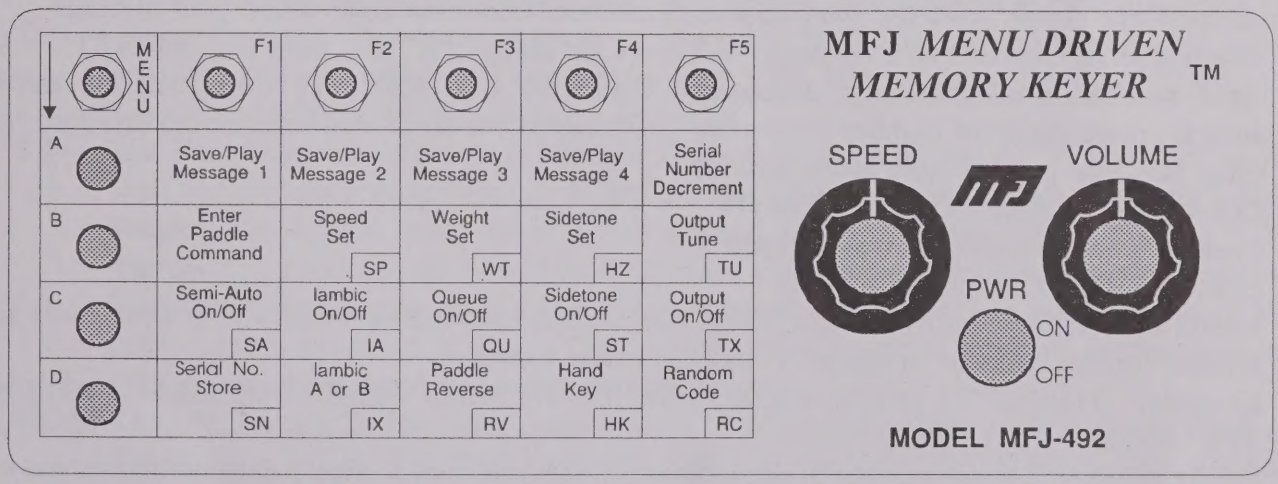
Start sending with the paddle. Adjust the volume and speed to your preference. If the speed is still too fast or too slow, adjust the range of the speed knob using the Speed Set feature. See Menu Operation.

Factory Reset

To reset the keyer to default settings, the **MENU** key is held down through power-up. This resets all settings to the factory default:

All memory messages are cleared.	Speed set to 20 WPM.
Weight set to 50% duty cycle.	Sidetone frequency set to 2000 Hz.
Iambic A mode selected.	Queue mode off.
Break mode off.	Output enabled.

If the keyer is turned on in the normal mode (without the **MENU** key held down), then the keyer will retain all settings prior to power down.



MENU OPERATION

The MFJ-492 menu system consists of a menu button marked **MENU**, five function buttons marked **F1-F5,** and four menu LEDs marked **A-D**. Pressing the **MENU** key changes the menu level. The keyer will sound an audible key click and light the Menu LED of the new level. The row of boxes beside that LED now contains the functions of keys **F1-F5**.

For example, to enable the Tune (key down) function, look for the box marked Output Tune on the front panel. It is found on Row B under the column F5. Press the **MENU** key until the LED marked **B** lights up. Then press the **F5** key. The keyer will respond by entering the Tune mode. Squeeze the paddles to exit that mode.

MFJ-492X Menu Operation

The MFJ-492X, a MFJ-492 with expansion RAM, works a little differently than a normal unit. On a MFJ-492X, Menu **A** has a LED that is lit either red or green. The red LED indicates the normal compliment of memories (1-4). The green LED indicates that there is an extra bank of memories (5-8) available. Memories are set or played the same way and **F5** remains Serial Number Decrement on both levels

Menu A

Message Memory

To play or save to a message memory, select Menu A. To save a message to memory, press and hold the function key until the keyer plays "GO" in Morse code. You may now key in the message of your choice. As you pause after every word, the keyer will play a "W" over the sidetone speaker to show that it is inserting a word break. If the keyer does not recognize your code as a valid character, the keyer will play a series of 8 dots and that character will not be saved. If you make a mistake entering a word, you can back up over it by keying in 8 continuous dots. The keyer will erase the previous word, then play the word before it (if any) to let you know where you stopped. At the end of your message hit the memory function key again to end your message. The keyer will respond by sending an end of message character (+). If you try to save more characters than you have memory, the keyer will automatically end your message, send you an end of message character and lock any unused messages. To play a message, press and release a function key quickly.

Embedded commands:

While in the save message mode you may use embedded commands for special features. To use an embedded command simply store the two character, embedded command code within your message.

/N Inserts a serial number into a message. All nines are sent as "N" and zeros are sent as "T". A serial number is automatically incremented each time it is sent. To decrement the serial number, press the serial number Decrement menu button. A new serial number can be saved by using the serial number store menu feature.
Example: YOU ARE CONTACT NR /N

/L Create a message loop. (Message Repeat)
Example: BEACON AA5CS 5 W /L

/P Inserts a timed pause into a message. This command is followed by 4 numbers in xx minutes xx seconds format. May be in either / Pxxxx or /Pxxxx format.
Example: TIMEOUT 1 HOUR /P6000 TIMEOUT 1.5 MIN / P0090 TIMEOUT 1 H 40 MIN 39 S / P9999

/# Inserts memory message number # into message. (Message Call) This command allows you to include any other message into another message. ***A message may not call any other message that contains an embedded message call.*** If no message is saved for that number nothing will play at the /#.
Example: message 1: CQ CQ CQ CQ
message 2: /1 DE KB5VKY
Sending message 2 plays CQ CQ CQ DE KB5VKY

/S Can be added into messages to insert an extra word space.

// To store a / in a message you must use the embedded command //.

Commands can be combined into messages:

FOXHUNT DE AA5MT /S /S /S BEACON WILL REPEAT 5 MIN DE TRANSMISSION NR /N /S /S /S CATCH ME IF YOU CAN /P 0500 /L

Serial Number Decrement

Use Serial Number Decrement to decrement the current serial number by one. The unit will echo a "D" for every number that is decremented. If you decrement down from zero you will get 9999 for your serial number. When a message plays 9999 the serial number will then increment to zero which does not play.

Menu B

Command Mode

The first function on Menu B is the enter paddle command mode. After you push the function button **F1** the keyer will respond with "CO". Now a two character command can be entered on your paddle. If the instruction is invalid then the keyer will send 8 rapid dots (error) and return the keyer to normal mode. If the user wishes to re-attempt modifying features using command mode, he must re-enter command mode by pressing **F1** again.

All of the menu commands can also be accessed through the Command Mode using the two character shorthand found on the front panel. However, some features are not on the menu. A summary of those commands and a brief description of each feature follows:

Command Mode Commands

BK Use Break On/Off to toggle between break mode on and off. The keyer responds with the current mode "ON" or "OFF". Break mode allows you to insert code into a message that is playing. Press a dot or dash to break into a message. The keyer will stop the current memory message. Begin sending code. After you finish sending code, press any message button to resume playing the message where you interrupted it. Press **Menu** to clear a message.

C# Where #=0-9. Use character break to customize the length of the intercharacter spacing. A standard character break is 3 dot lengths long. The number following the C is the number of extra dot lengths added to a character break.

FA Use Farnsworth mode to toggle between Farnsworth mode on and off. Farnsworth mode works with the random code generator. It sets the code character speed to 18 words per minute while keeping the overall word speed at the defined setting. If the keyer is set to 5 WPM in Farnsworth mode, the keyer will send 18 WPM characters while inserting extra word break and intercharacter timing to maintain an effective speed of 5 WPM. At speeds above 18 WPM the keyer reverts to normal timing. This feature allows a user to associate Morse characters with their sound rather than by counting dots and dashes.

KC## ##=00-15 sets a keying compensation value. Some radios have a key delay of 5 mS or more. By entering KC05, the keyer will add 5 mS to the dots and dashes. This eliminates the problems with a keying delay

R# Where #=1-8. Use Random Number to customize the Random Code Generator. The keyer will play "OK" after your command has been entered.

R1: Enable either 5 character word length or random (1-8 character) word length.
R2: Toggle random numeric characters on and off.
R3: Toggle random punctuation characters on and off.
R4: Toggle random prosign characters on and off.
R5: Toggle random alphabetic characters on and off.
R6: Enable either fixed character sets (01 - 09) or enabled sets (R2 - R5). See ## command.
R7: Enable either repeat code session or new code session.

Command Mode Commands (cont)

W# Where #=0-9. Use word break to customize the length of the interword spacing. A standard word break is 7 dot lengths long. The number following the W is the number of extra dot lengths added to a word break. Keyer echos "OK" upon entry.

= 00 - 09. Select one of the six character sets for the random code generation. Keyer echos "OK" upon entry.

01	02	03	04	05	06	07	08	09
A	G	M	S	Y	4	.	_	;
B	H	N	T	Z	5	?	+	(
C	I	O	U	0	6	"	,	)
D	J	P	V	1	7	$	-	/
E	K	Q	W	2	8	'	=	Start
F	L	R	X	3	9	Para	:	Invite

Speed Set (SP)

Use Speed Set (wpm) mode to change the speed of code . An alternating dot/dash is produced and the speed is modified by using the paddles to increase/decrease speed. Squeeze paddles to exit.

Weight Set (WT)

Use Weight Set to modify the weight settings for code. An alternating dot/dash is produced and the weight of the code is modified by using the paddles to increase/decrease weight. Squeeze paddles to exit.

Sidetone Set (HZ)

Use Sidetone Set to change the sidetone speaker frequency. The paddles now change the tone of the sidetone that is emitted from the speaker. This will not change the frequency of the code transmission because the keyer does not affect the tone that a radio emits. Squeeze paddles to exit.

Output Tune (TU)

Use Output Tune to tune up your station. This sends a constant key to allow tuning of your station. Squeeze paddles to exit.

MENU C

Semi-Auto On/Off (SA)

Use Semi-auto On/Off to toggle between semi-auto (bug) mode on and off. The keyer responds with the current mode "ON" or "OFF". Semi-auto mode creates automatic dots but requires dashes to be hand keyed. ***Note: Semi-Auto mode may not be used to enter messages, serial numbers or in command mode.***

Iambic On/Off (IA)

Use Iambic On/Off to toggle between iambic modes on and off. The keyer responds with the current mode "ON" or "OFF". Iambic mode allows you to squeeze both paddles and get alternating dashes or dots. Non-iambic mode does not alternate between dots and dashes during a squeeze. It plays whatever side made contact first until it is released. See Iambic A or B

Queue On/Off (QU)

Use Queue On/Off to toggle between queue mode on and off. The keyer responds with the current mode "ON" or "OFF". Queue mode enables the user to load messages into a buffer to play messages sequentially. In queue mode, if you press a memory button while a message is playing, that message will play after the current message is done. In normal operation pressing a message memory will abort any message being played and play the new message.

Sidetone On/Off (ST)

Use Sidetone On/Off to toggle between sidetone speaker on and off. The keyer responds with the current mode "ON" or "OFF". If the sidetone is turned off, it will still play command messages and status information.

Output On/Off (TX)

Use Output On/Off to toggle between output on and off. The keyer responds with the current mode "ON" or "OFF". If the output is turned off, no signal goes to the keyer gridblock or direct outputs to allow for practice operation. The output is automatically disabled during memory message storing, command mode operation, status information, and keyer setup.

Menu D

Serial No. Store (SN)

Use Serial Number Store to set the current serial number. You must enter four numbers in Morse code for a valid serial number. All numbers must be in the proper Morse code format. For example, the number "1" must be ".----" and the number "0" must be "-----". The serial number can be set from 0000 to 9999. See /N under Embedded Commands. See also Serial Number Decrement.

Iambic A or B (IX)

Use Iambic A or B to toggle between Iambic A and Iambic B. The keyer responds with the current mode "A" or "B". The Iambic modes work when you squeeze both paddles together. See Iambic On/Off. In Iambic B mode the keyer plays the alternating element after the paddles are released during an element. Iambic A mode does not produce an alternating element when the paddles are released during an element. For example, a release during the dash produces ".-" or "A" in Iambic A mode but produces ".-." or "R" in Iambic B mode.

Paddle Reverse (RV)

Use Paddle Reverse to change the dot/dash paddle assignments. The keyer responds with "RV" and changes the dot paddle to dash and the dash paddle to dot.

Hand Key (HK)

Use Hand Key to use your paddle as a hand (straight) key. The keyer responds with "HK". Dots and dashes are made manually by using either key of the paddle. Squeeze paddles to exit.

Random Code (RC)

Use Random Code to start the random code generator. Set up the Random Code generator using the Command Mode. Use FA, R1-8 and the set selection numbers to customize your code tutor to select exactly what you need to study. Squeeze paddles to exit.

TYPICAL SETTINGS FOR A CONTEST

This is an example of some typical settings for a contest. Each contest has different rules for exchanges etc. and you may have a different method of contesting. This is an example of one contester's settings.

Memory #1: CQ TEST DE W8JI W8JI W8JI TEST
Memory #2: TEST W8J1 W8JI
Memory #3: UR 599 SN /N OH 599 SN /N OH DE W8JI
Memory #4: R 73 TEST W8JI

Memory #1 is set for CQ at slow periods or at the end of a contest when most stations have already been worked.

Memory #2 is set for busy times when contacts are plentiful. Each of these memories are set with simple to the point messages. A listener will immediately know who is calling and what they want. The call is repeated after a short CQ TEST so that someone will not spend much time listening to stations they have already worked.

Memory #3 is set with the contest exchange. It gives a serial number and other contest information. Remember all contests require different exchanges.

Memory #4 is set to close a QSO and announce that you are ready to for another contact.

TYPICAL CODE PRACTICE SETTINGS

This is an example of a typical code practice session. Work first on the letters A-F. You can do all our practice in Farnsworth mode so that you will learn the sound of each character at a high speed.

Enter Command Mode and key in 'FA'. This enters Farnsworth mode.

Now fix the code generator to the 6 character sets by entering R6.

Enter '01' in the Command Mode to choose the A-F character set. The default settings are set to fixed 5 character length and repeat session.

Now adjust the speed with the speed set feature. Remember you are in Farnsworth mode so you can only adjust word spacing. All character speed is set to 18 words per minute.

Get ready to copy.

Press the Random Code Function key and take code for a couple minutes. When you get to a stopping point squeeze the paddles together to end the session.

Restart the session again by pressing the Random Code Function key. The code session will start again and you should be able to check your copy. The same code session will repeat until you turn off the power or toggle the R8 command in the Command Mode.

After you have practiced the A-F set you can move to the next set by entering 02 - 08 in the command mode.

BATTERY REMOVAL AND INSTALLATION

The lithium cell on this keyer should last 2 years or more. The battery can be tested by removing the cover and turning the unit **ON**. Test the voltage of the battery from the battery(+) to the chassis(-). The voltage tested should be over 2.7 volts or the battery should be replaced. ***To replace the battery the unit must be powered ON.*** The battery is carefully removed and a new one carefully inserted.

MEMORY EXPANSION

To expand an MFJ-492 to 8x1000 character message memories, you can order the MFJ-80 Expansion Ram kit from MFJ or upgrade the keyer yourself with an HM6264ALP-10 or equivalent static ram chip. First remove power and the lithium battery. Install the chip matching the notch printed on the circuit board. Turn the unit **ON** with the Menu key held down and reinstall the lithium battery.

COMMAND MODE QUICK REFERENCE

COMMAND		DESCRIPTION
BK		TOGGLES BREAK IN MODE ON/OFF
C#	# = 0-9	SELECTS CHARACTER BREAK LENGTH
FA		TOGGLES FARNSWORTH MODE ON/OFF
HK		ENABLES HAND KEY (STRAIGHT KEY) MODE
HZ		ENABLES SIDETONE FREQUENCY SET MODE
IA		TOGGLES IAMBIC MODE ON/OFF
IX		TOGGLES IAMBIC MODES A/B
KC##	## = 00-15	SELECTS KEYING COMPENSATION VALUE
QU		TOGGLES MESSAGE QUEUE MODE ON/OFF
RA		ENABLES RANDOM CODE MODE
RV		TOGGLES DOT/DASH PADDLE ASSIGNMENTS
R#	# = 1-8	SELECTS RANDOM CODE MODES
SA		ENABLES SEMI-AUTOMATIC (BUG) MODE
SN		ENABLES SERIAL NUMBER STORE MODE
SP		ENABLES SPEED (WPM) SET MODE
ST		TOGGLES SIDETONE ON/OFF
TU		ENABLES TUNE (KEY UP) MODE
TX		TOGGLES OUTPUT KEY ON/OFF
WT		ENABLES WEIGHT SET MODE
W#	# = 0-9	SELECTS WORD BREAK LENGTH
##	## = 01-09	SELECTS RANDOM CODE 6 CHARACTER SETS

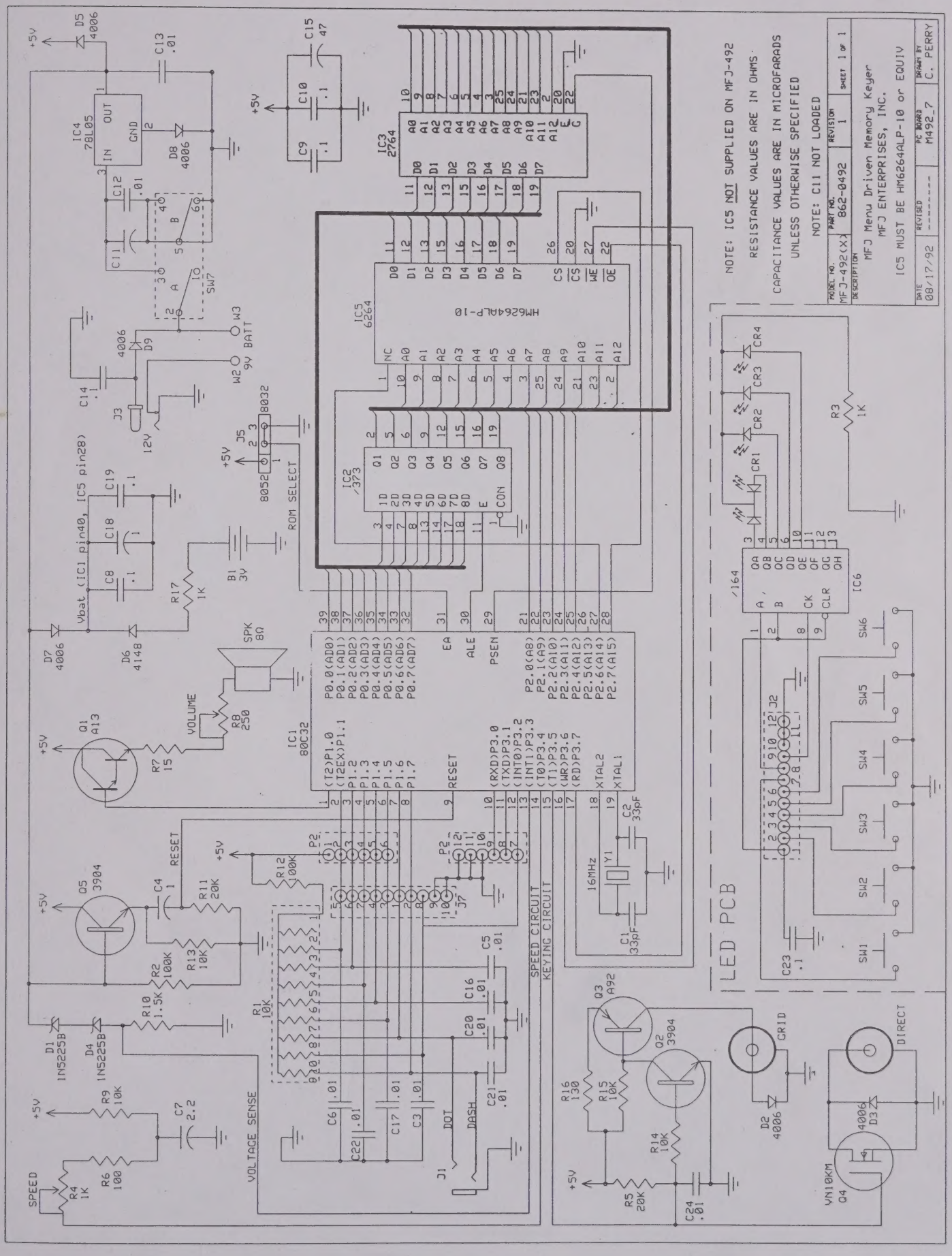
TECHNICAL ASSISTANCE

If you have any problem with this unit first check the appropriate section of this manual. If the manual does not reference your problem or your problem is not solved by following the manual you may call MFJ toll-free at 1-800-647-TECH (8324) or FAX to 601-323-6551, or TELEX 53 4590 MFJ STKV. Outside of the continental U.S.A. 601-323-5869. You will be best served if you have your unit, manual and all information on your station handy so you can answer any questions the technicians may ask.

You can also send questions to MFJ Enterprises, INC., P.O. Box 494, Mississippi State, MS 39762. Send a complete description of your problem, an explanation of exactly how you are using your unit and a complete description of your station.

MFJ-492 PARTS LIST

Part Number	Designation	MFJ Part #
C1,C2	CAPACITOR, MULTILAYER CER., 5%, 50 V, 33 PF	205-0020
C3,C5,C6,C12,C13,C16	CAPACITOR, DISC CERAMIC, 1 KV, 20%, .01 UF	200-2015
C4,C18	CAPACITOR, ELECTROLYTIC, RADIAL, 50V, 1 UF	203-0006
C7	CAPACITOR, ELECTROLYTIC, RADIAL, 35V, 2.2UF	203-0002
C8,C9,C10,C19	CAPACITOR, MULTILAYER, .2, X7R, 10%, 50V, .1 UF	205-2210
C14	CAPACITOR, DISC CERAMIC, 1 KV, 20%, .1 UF	200-2017
C15	CAPACITOR, ELECTROLYTIC, RADIAL, 35V, 47 UF	203-0007
C17,C20,C21,C22,C24	CAPACITOR, DISC CERAMIC, 1 KV, 20%, .01 UF	200-2015
CR1	LED, DUAL COLOR	320-0004
CR2,CR3,CR4	LED, RED, MV5753	320-0001
R1	RESISTOR, NETWORK, COMMON, 10K OHM	126-4100-09
R2,R12	RESISTOR, 1/4 WATT, 5%, FILM, 100K OHM	100-5100
R3,R17	RESISTOR, 1/4 WATT, 5%, FILM, 1.0K OHM	100-3100
R4	RESISTOR, POT, LINEAR TAPER, 1K POT	162-3100-1
R6	RESISTOR, 1/4 WATT, 5%, FILM, 100 OHM	100-2100
R7	RESISTOR, 1/4 WATT, 5%, FILM, 15 OHM	100-1150
R8	RESISTOR, POT, LINEAR TAPER,10%, 250 OHM	162-2250-1
R10	RESISTOR, 1/4 WATT, 5%, FILM, 1.5K OHM	100-3150
R11	RESISTOR, 1/4 WATT, 5%, FILM, 20K OHM	100-4200
R13,R14,R15,R9	RESISTOR, 1/4 WATT, 5%, FILM, 10.0K OHM	100-4100
R16	RESISTOR, 1/4 WATT, 5%, FILM, 470 OHM	100- 2470
PC1	PC BOARD ASSEMBLY	90-1201-1
Q1	TRANSISTOR, DARLINGTON, TO-92, NPN, MPS-A13	305-2007
Q2,Q5	TRANSISTOR, TO-92,NPN, MOT 2N3904	305-0018
Q3	TRANSISTOR, TO-92, PNP, MPS-A92	305-2006
Q4	TRANSISTOR, SWITCHING, VN10KM	305-6005
Y1	CRYSTAL, HC18/U, 16 MHZ	405-0067
D1,D4	DIODE, ZENER, 1N5225B	301-5225
D2,D3,D5,D7,D8	DIODE, RECTIFIER, 1N4006	300-1005
D6	DIODE, SWITCHING, 1N4148	300-0003
IC1	IC, CPU, 8-BIT, INTEL, P80C32-1	313-08032
IC2	IC, TRI-STATE OCTAL LATCH, 74HCT373	310-4373
IC3	IC, EPROM, 28 PIN, 64K, 27C64	312-2081
IC4	VOLTAGE REGULATOR, TO-92, 78L05AC	307-0010
IC6	IC, 8 BIT SHIFT REGISTER, 74HC164	310-3164
FOR IC1	SOCKET, IC, LOW PROFILE, 40 PIN	625-0181
FOR IC2	SOCKET, IC, LOW PROFILE, 20 PINS	625-0291
FOR IC3, IC5	SOCKET, IC, LOW PROFILE, 28 PINS	625-0292
FOR IC6	SOCKET, IC, LOW PROFILE, 14 PIN	625-0031
JMP1	WIRE JUMPER	870-5000
J1	JACK, 1/4" PHONE, STEREO	601-0012
J2/P2	JUMPER RIBBON, 12 POS	620-6031
J3	JACK, 2.1 MM, DC COAXIAL JACK	601-6021
J4,J5	JACK, RCA PHONO	600-0011
J6	CONNECTOR, JUMPER, 2 POSITION	612-4001
J7	CONNECTOR, RT. ANGLE, 9 POS	612-1009
SW1,SW2,SW3,SW4,SW5	SWITCH, PUSH BUTTON, SPST	504-1003
SW6	SWITCH, PUSH BUTTON	504-1003
SW7	SWITCH, PUSH-BOTTON 2P2P	504-0022
CAP	KEYCAP RED	760-2140
	BATTERY, COIN, 3V, LITHUM	730-1308
	HOLDER, BATTERY, LITHUM	730-2293
	BATTERY, HOLDER, 9-V	730-2001
	BATTERY, SNAP, 9V, 8	730-3005
	SPEAKER, 8 OHM	410-0024


NOTE: IC5 NOT SUPPLIED ON MFJ-492
RESISTANCE VALUES ARE IN OHMS
CAPACITANCE VALUES ARE IN MICROFARADS
UNLESS OTHERWISE SPECIFIED
NOTE: C11 NOT LOADED
MODEL NO. MFJ-492(X)
PART NO. 862-0492
REVISION 1
SHEET 1 OF 1
DESCRIPTION
MFJ Menu Driven Memory Keyer
MFJ ENTERPRISES, INC.
IC5 MUST BE HM6264ALP-10 or EQUIV
DATE 08/17/92
REVISED
PC BOARD M492_7
DRAWN BY C. PERRY
LED PCB
SPEED CIRCUIT
KEYING CIRCUIT
VOLTAGE SENSE
ROM SELECT
VOLUME
RESET
SPEED
DOT
DASH
GRID
DIRECT
IC1 80C32
IC2 373
IC3 2764
IC4 78L05
IC5 6264
HM62644LP-10
IC6 164
Y1 16MHz
SW1
SW2
SW3
SW4
SW5
SW6
SW7
J1
J2
J3
J5
J7
Q1 A13
Q2 3904
Q3 A92
Q4 VN10KM
Q5 3904
D1 1N5225B
D2 4006
D3 4006
D4 1N5225B
D5 4006
D6 4148
D7 4006
D8 4006
D9 4006
CR1
CR2
CR3
CR4
B1 3V
9V BATT
12V
SPK 8Ω

FULL 12 MONTH WARRANTY

MFJ Enterprises, Inc. warrants to the original owner of this product, if manufactured by MFJ Enterprises, Inc. and purchased from an authorized dealer or directly from MFJ Enterprises, Inc. to be free from defects in material and workmanship for a period of 12 months from date of purchase provided the following terms of this warranty are satisfied.

1. The purchaser must retain the dated proof-of-purchase (bill of sale, canceled check, credit card or money order receipt, etc.) describing the product to establish the validity of the warranty claim and submit the original of machine reproduction of such proof of purchase to MFJ Enterprises, Inc. at the time of warranty service. MFJ Enterprises, Inc. shall have the discretion to deny warranty without dated proof-of-purchase. Any evidence of alteration, erasure, of forgery shall be cause to void any and all warranty terms immediately.

2. MFJ Enterprises, Inc. agrees to repair or replace at MFJ's option without charge to the original owner any defective product provided the product is returned postage prepaid to MFJ Enterprises, Inc. with a personal check, cashiers check, or money order for **$7.00** covering postage and handling.

3. MFJ Enterprises, Inc. will supply replacement charges free of charge for any MFJ product under warranty upon request. A dated proof of purchase and a **$5.00** personal check, cashiers check, or money order must be provided to cover postage and handling.

4. This warranty is **NOT** void for owners who attempt to repair defective units. Technical consultation is available by calling (601) 323-5969.

5. This warranty does not apply to kits sold by or manufactured by MFJ Enterprises, Inc.

6. Wired and tested PC board products are covered by this warranty provided **only the wired and tested PC board product is returned.** Wired and tested PC boards installed in the owner's cabinet or connected to switches, jacks, or cables, etc. sent to MFJ Enterprises, Inc. will be returned at the owner's expense unrepaired.

7. Under no circumstances is MFJ Enterprises, Inc. liable for consequential damages to person or property by the use of any MFJ products.

8. **Out-of-Warranty Service:** MFJ Enterprises, Inc. will repair any out-of-warranty product provided the unit is shipped prepaid. All charges will be shipped COD to the owner.

9. This warranty is given in lieu of any other warranty expressed or implied.

10. MFJ Enterprises, Inc. reserves the right to make changes or improvements in design or manufacture without incurring any obligation to install such changes upon any of the products previously manufactured.

11. All MFJ products to be serviced in-warranty or out-of-warranty should be addressed to **MFJ Enterprises, Inc., 921A Louisville Road, Starkville, Mississippi 39759, USA** and must be accompanied by a letter describing the problem in detail along with a copy of your dated proof-of-purchase.

12. This warranty gives you specific rights, and you may also have other rights which vary from state to state.